FIGURE 1

domains
inter-domain sections
disulphide bonds
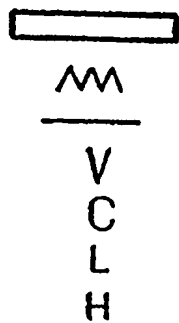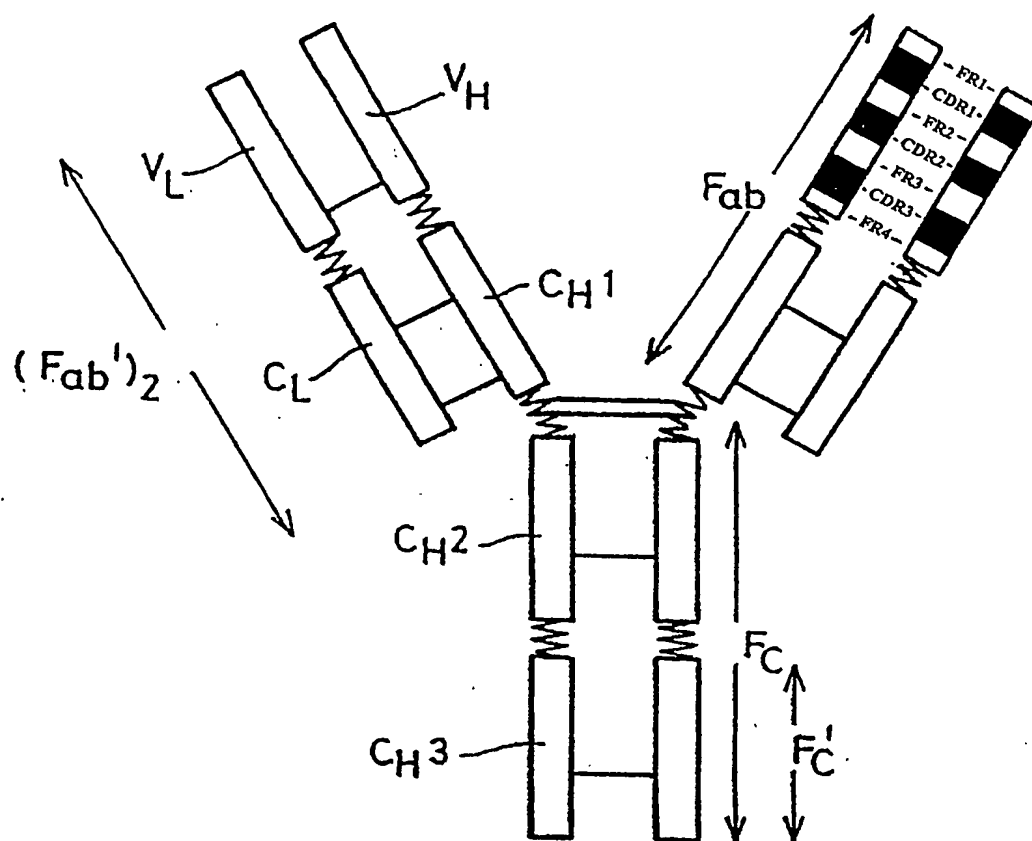V   variable
C   constant
L   light chain
H   heavy chain

FIGURE 2

A.

SEQ ID NO:59 - AME 33 light chain variable region amino acid sequence

EIVLTQSPGTLSLSPGERATLSCRASSSVPYIHWYQQKPGQAPRLLIYATSALASGI
PDRFSGSGSGTDFTLTISRLEPEDFAVYYCQQWLSNPPTFGQGTKLEIK

B.

SEQ ID NO:60 - AME 33 light chain variable region nucleic acid sequence

GAAATTGTGTTGACGCAGTCTCCAGGCACCCTGTCTTTGTCTCCAGGGGAAAG
AGCCACCCTCTCCTGCAGGGCCAGCTCAAGTGTACCGTACATCCACTGGTAC
CAGCAGAAACCTGGCCAGGCTCCCAGGCTCCTCATCTATGCCACATCCGCTCT
GGCTTCTGGCATCCCAGACAGGTTCAGTGGCAGTGGGTCTGGGACAGACTTC
ACTCTCACCATCAGCAGACTGGAGCCTGAAGATTTTGCAGTGTATTACTGTCA
GCAGTGGCTGAGTAACCCACCCACTTTTGGCCAGGGGACCAAGCTGGAGATC
AAA

FIGURE 3

A.

SEQ ID NO:61 - AME 33 heavy chain variable region amino acid sequence

EVQLVQSGAEVKKPGESLKISCKGSGRTFTSYNMHWVRQMPGKGLEWMGAIYP
LTGDTSYNQKSKLQVTISADKSISTAYLQWSSLKASDTAMYYCARSTYVGGDW
QFDVWGKGTTVTVSS

B.

SEQ ID NO:62 - AME 33 heavy chain variable region nucleic acid sequence

GAGGTGCAGCTGGTGCAGTCTGGAGCAGAGGTGAAAAAGCCCGGGGAGTCT
CTGAAGATCTCCTGTAAGGGTTCTGGCCGTACATTTACCAGTTACAATATGCA
CTGGGTGCGCCAGATGCCCGGGAAAGGCCTGGAGTGGATGGGGGCTATTTAT
CCCTTGACGGGTGATACTTCCTACAATCAGAAGTCGAAACTCCAGGTCACCA
TCTCAGCCGACAAGTCCATCAGCACCGCCTACCTGCAGTGGAGCAGCCTGAA
GGCCTCGGACACCGCCATGTATTACTGTGCGAGATCGACTTACGTGGGCGGT
GACTGGCAGTTCGATGTCTGGGGCAAGGGGACCACGGTCACCGTCTCCTCA

FIGURE 4

A.   Amino acid sequence of a human light chain framework region VkIII (A27)
(DPK22) with interspersed CDR sequences labeled

(FRL1 - SEQ ID NO:71)   CDRL1   (FRL2 - SEQ ID NO:72)   CDRL2
EIVLTQSPGTLSLSPGERATLSC<u>XXXXXXXXXX</u>WYQQKPGQAPRLLIY<u>XXXXXXX</u>

(FRL3 - SEQ ID NO:73)   CDRL3   (FRL4 - SEQ ID NO:74)
GIPDRFSGSGSGTDFTLTISRLEPEDFAVYYC<u>XXXXXXXXX</u>FGQGTKLEIK

B.   Nucleic acid sequence of a human light chain framework region VkIII (A27)
(DPK22) with interspersed CDR sequences labeled

(FRL1 - SEQ ID NO:75)
GAAATTGTGTTGACGCAGTCTCCAGGCACCCTGTCTTTGTCTCCAGGGGAAAGAG

CDRL1
CCACCCTCTCCTGC<u>XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX</u>TGGTACCAG

(FRL2 - SEQ ID NO:76)   CDRL2
CAGAAACCTGGCCAGGCTCCCAGGCTCCTCATCTAT<u>XXXXXXXXXXXXXXXXXXX</u>

<u>XXX</u>GGCATCCCAGACAGGTTCAGTGGCAGTGGGTCTGGGACAGACTTCACTCTC

(FRL3 - SEQ ID NO:77)
ACCATCAGCAGACTGGAGCCTGAAGATTTTGCAGTGTATTACTGT<u>XXXXXXXXX</u>

CDRL3   (FRL4 - SEQ ID NO:78)
<u>XXXXXXXXXXXXXXXXXXXXX</u>TTTGGCCAGGGGACCAAGCTGGAGATCAAA

FIGURE 5

A. **Amino acid sequence of a human heavy chain framework region VH5-51 (DP-73) with interspersed CDR sequences labeled**

(FRH1 - SEQ ID NO:79)   CDRH1   (FRH2 - SEQ ID NO:80)
EVQLVQSGAEVKKPGESLKISCKGS<u>XXXXXXXXXX</u>WVRQMPGKGLEWMG

          CDRH2   (FRH3 - SEQ ID NO:81)
<u>XXXXXXXXXXXXXXXXXX</u>QVTISADKSISTAYLQWSSLKASDTAMYYCAR

      CDRH3   (FRH4 - SEQ ID NO:82)
<u>XXXXXXXXXXXX</u>WGKGTTVTVSS

B. **Nucleic acid sequence of a human heavy chain framework region VH5-51 (DP-73) with interspersed CDR sequences labeled**

(FRH1 - SEQ ID NO:83)
GAGGTGCAGCTGGTGCAGTCTGGAGCAGAGGTGAAAAAGCCCGGGGAGTCTCTG

                                                    CDRH1
AAGATCTCCTGTAAGGGTTCT<u>XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX</u>

      (FRH2- SEQ ID NO:84)
TGGGTGCGCCAGATGCCCGGGAAAGGCCTGGAGTGGATGGGG

                        CDRH2
<u>XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX</u>

CAGGTCACCATCTCAGCCGACAAGTCCATCAGCACCGCCTACCTGCAGTGGAGC

    (FRH3 - SEQ ID NO:85)
AGCCTGAAGGCCTCGGACACCGCCATGTATTACTGTGCGAGA<u>XXXXXXXXXX</u>

      CDRH3   (FRH4 - SEQ ID NO:86)
<u>XXXXXXXXXXXXXXXXXXXXXXXXXXXX</u>TGGGGCAAGGGGACCACGGTCACCGTCT

CCTCA

FIGURE 6

A.

SEQ ID NO:63 - AME 5 light chain variable region amino acid sequence

DIQMTQSPSSLSASVGDRVTITCRASSSVHYIHWYQQKPGKVPKLLIYATSGLAS
GVPSRFSGSGSGTDFTLTISSLQPEDVATYYCQTWTFNPPTFGGGTKVEIK

B.

SEQ ID NO:64 - AME 5 light chain variable region nucleic acid sequence

GACATCCAGATGACCCAGTCTCCATCCTCCCTGTCTGCATCTGTAGGA
GACAGAGTCACCATCACTTGCAGGGCCAGCTCAAGTGTACATTACATC
CACTGGTACCAGCAGAAACCAGGGAAAGTTCCTAAGCTCTTGATCTAT
GCCACATCCGGCCTGGCTTCTGGGGTCCCATCTCGGTTCAGTGGCAGT
GGATCTGGGACAGATTTCACTCTCACCATCAGCAGCCTGCAGCCTGAA
GATGTTGCCACTTATTACTGCCAGACTTGGACTTTTAACCCTCCCACG
TTCGGCGGAGGGACCAAGGTGGAGATCAAA

FIGURE 7

A.

SEQ ID NO:65 - AME 5 heavy chain variable region amino acid sequence

QVQLVQSGAEVKKPGASVKVSCKASGYTFTSYNMHWVRQAPGQGLEWMGAIY
PGNGDTSYNQKFKWRVTMTRDTSTSTVYMELSSLRSEDTAVYYCARSTYYGGD
WQFDEWGKGTTVTVSS

B.

SEQ ID NO:66 - AME 5 heavy chain variable region nucleic acid sequence

CAGGTGCAGCTGGTGCAGTCTGGTGCTGAAGTGAAGAAGCCTGGGGCC
TCAGTGAAGGTGTCCTGCAAGGCATCTGGATACACCTTCACCAGCTAC
AATATGCACTGGGTGCGACAGGCCCCTGGACAAGGGCTTGAGTGGATG
GGAGCCATCTATCCTGGAAATGGTGATACAAGCTACAATCAGAAGTTT
AAATGGAGAGTCACCATGACCAGGGACACGTCCACGAGCACAGTCTAC
ATGGAGCTGAGCAGCCTGAGATCTGAGGACACGGCCGTGTATTACTGT
GCGAGATCGACTTATTACGGCGGTGACTGGCAGTTCGACGAGTGGGGC
AAAGGGACCACGGTCACCGTCTCCTCA

FIGURE 8

A.   Amino acid sequence of a human light chain framework region VkI (DPK4) (A20) with interspersed CDR sequences labeled

          (FRL1 - SEQ ID NO:87)   (CDRL1)   (FRL2 - SEQ ID NO:88)   (CDRL2)
DIQMTQSPSSLSASVGDRVTITC<u>XXXXXXXXXXX</u>WYQQKPGKVPKLLIY<u>XXXXXXX</u>

        (FRL3 - SEQ ID NO:89)   (CDRL3)   (FRL4 - SEQ ID NO:90)
GVPSRFSGSGSGTDFTLTISSLQPEDVATYYC<u>XXXXXXXXX</u>FGGGTKVEIK

B.   Nucleic acid sequence of a human light chain framework region VkI (DPK4) (A20) with interspersed CDR sequences labeled

              (FRL1 - SEQ ID NO:91)
GACATCCAGATGACCCAGTCTCCATCCTCCCTGTCTGCATCTGTAGGAGACAGAG

                                   (CDRL1)
TCACCATCACTTGC<u>XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX</u>TGGTACCAG

       (FRL2 - SEQ ID NO:92)   (CDRL2)
CAGAAACCAGGGAAAGTTCCTAAGCTCTTGATCTAT<u>XXXXXXXXXXXXXXXXX</u>

(CDRL2 cont.)   (FRL3 - SEQ ID NO:93)
<u>XXXX</u>GGGGTCCCATCTCGGTTCAGTGGCAGTGGATCTGGGACAGATTTCACTCT

CACCATCAGCAGCCTGCAGCCTGAAGATGTTGCCACTTATTACTGC<u>XXXXXXXX</u>

          (CDRL3)   (FRL4 - SEQ ID NO:94)
<u>XXXXXXXXXXXXXXXXXXXXXX</u>TTCGGCGGAGGGACCAAGGTGGAGA

TCAAA

FIGURE 9

A. Amino acid sequence of a human heavy chain framework region VHI DP7/21-2 with interspersed CDR sequences labeled

(FRH1 - SEQ ID NO:95)   (CDRH1)   (FRH2 - SEQ ID NO:96)

QVQLVQSGAEVKKPGASVKVSCKAS<u>XXXXXXXXXX</u>WVRQAPGQGLEWMG

(CDRH2)   (FRH3 - SEQ ID NO:97)

<u>XXXXXXXXXXXXXXXXXXX</u>RVTMTRDTSTSTVYMELSSLRSEDTAVYYCAR

(CDRH3)   (FRH4 - SEQ ID NO:98)

<u>XXXXXXXXXXXX</u>WGKGTTVTVSS

B. Nucleic acid sequence of a human heavy chain framework region VHI DP7/21-2 with interspersed CDR sequences labeled

(FRH1 - SEQ ID NO:99)

CAGGTGCAGCTGGTGCAGTCTGGTGCTGAAGTGAAGAAGCCTGGGGCCTCAGTG

(CDRH1)

AAGGTGTCCTGCAAGGCATCT<u>XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX</u>TG

(FRH2 - SEQ ID NO:100)   (CDRH2)

GGTGCGACAGGCCCCTGGACAAGGGCTTGAGTGGATGGGA<u>XXXXXXXXXXXXX</u>

(CDRH2 cont.)

<u>XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX</u>AGAGTCACCATGAC

(FRH3 - SEQ ID NO:101)

CAGGGACACGTCCACGAGCACAGTCTACATGGAGCTGAGCAGCCTGAGATCTGA

(CDRH3)

GGACACGGCCGTGTATTACTGTGCGAGA<u>XXXXXXXXXXXXXXXXXXXXXXXXXXX</u>

(CDRH3)   (FRH4 - SEQ ID NO:102)

<u>XXXXXXXXXXXX</u>TGGGGCAAAGGGACCACGGTCACCGTCTCCTCA

FIGURE 10

A.

SEQ ID NO:67 - AME 33 complete light chain amino acid sequence

EIVLTQSPGTLSLSPGERATLSCRASSSVPYIHWYQQKPGQAPRLLIYATSĂLASGIPDR
FSGSGSGTDFTLTISRLEPEDFAVYYCQQWLSNPPTFGQGTKLEIKRTVAAPSVFIFPPS
DEQLKSGTASVVCLLNNFYPREAKVQWKVDNALQSGNSQESVTEQDSKDSTYSLSST
LTLSKADYEKHKVYACEVTHQGLSSPVTKSFNRGEC

- Constant Region is underlined

B.

SEQ ID NO:68 - AME 33 complete light chain nucleic acid sequence

GAAATTGTGTTGACGCAGTCTCCAGGCACCCTGTCTTTGTCTCCAGGGGAAAGAG
CCACCCTCTCCTGCAGGGCCAGCTCAAGTGTACCGTACATCCACTGGTACCAGCA
GAAACCTGGCCAGGCTCCCAGGCTCCTCATCTATGCCACATCCGCTCTGGCTTCTG
GCATCCCAGACAGGTTCAGTGGCAGTGGGTCTGGGACAGACTTCACTCTCACCAT
CAGCAGACTGGAGCCTGAAGATTTTGCAGTGTATTACTGTCAGCAGTGGCTGAGT
AACCCACCCACTTTTGGCCAGGGGACCAAGCTGGAGATCAAACGAACTGTGGCTG
CACCATCTGTCTTCATCTTCCCGCCATCTGATGAGCAGTTGAAATCTGGAACTGCC
TCTGTTGTGTGCCTGCTGAATAACTTCTATCCCAGAGAGGCCAAAGTACAGTGGA
AGGTGGATAACGCCCTCCAATCGGGTAACTCCCAGGAGAGTGTCACAGAGCAGGA
CAGCAAGGACAGCACCTACAGCCTCAGCAGCACCCTGACGCTGAGCAAAGCAGA
CTACGAGAAACACAAAGTCTACGCCTGCGAAGTCACCCATCAGGGCCTGAGCTCG
CCCGTCACAAAGAGCTTCAACAGGGGAGAGTGTTAG

FIGURE 11

A.   SEQ ID NO:69 - AME 33 complete heavy chain amino acid sequence

EVQLVQSGAEVKKPGESLKISCKGSGRTFTSYNMHWVRQMPGKGLEWMGAIYPLTG
DTSYNQKSKLQVTISADKSISTAYLQWSSLKASDTAMYYCARSTYVGGDWQFDVWG
KGTTVTVSS<u>ASTKGPSVFPLAPSSKSTSGGTAALGCLVKDYFPEPVTVSWNSGALTSG
VHTFPAVLQSSGLYSLSSVVTVPSSSLGTQTYICNVNHKPSNTKVDKKVEPKSCDKTH
TCPPCPAPELLGGPSVFLFPPKPKDTLMISRTPEVTCVVVDVSHEDPEVKFNWYVDGV
EVHNAKTKPREEQYNSTYRVVSVLTVLHQDWLNGKEYKCKVSNKALPAPIEKTISKA
KGQPREPQVYTLPPSRDELTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTTPPV
LDSDGSFFLYSKLTVDKSRWQQGNVFSCSVMHEALHNHYTQKSLSLSPGK</u>

- Constant Region is underlined; the "D" at position 280 and "K" at position 290 are in bold

B.   SEQ ID NO:70 - AME 33 complete heavy chain nucleic acid sequence

GAGGTGCAGCTGGTGCAGTCTGGAGCAGAGGTGAAAAAGCCCGGGGAGTCTCTG
AAGATCTCCTGTAAGGGTTCTGGCCGTACATTTACCAGTTACAATATGCACTGGGT
GCGCCAGATGCCCGGGAAAGGCCTGGAGTGGATGGGGGCTATTTATCCCTTGACG
GGTGATACTTCCTACAATCAGAAGTCGAAACTCCAGGTCACCATCTCAGCCGACA
AGTCCATCAGCACCGCCTACCTGCAGTGGAGCAGCCTGAAGGCCTCGGACACCGC
CATGTATTACTGTGCGAGATCGACTTACGTGGGCGGTGACTGGCAGTTCGATGTCT
GGGGCAAGGGGACCACGGTCACCGTCTCCTCAGCCTCCACCAAGGGCCCATCGGT
CTTCCCCCTGGCACCCTCCTCCAAGAGCACCTCTGGGGGCACAGCGGCCCTGGGCT
GCCTGGTCAAGGACTACTTCCCCGAACCGGTGACGGTGTCGTGGAACTCAGGCGC
CCTGACCAGCGGCGTGCACACCTTCCCGGCTGTCCTACAGTCCTCAGGACTCTACT
CCCTCAGCAGCGTGGTGACCGTGCCCTCCAGCAGCTTGGGCACCCAGACCTACAT
CTGCAACGTGAATCACAAGCCCAGCAACACCAAGGTGGACAAGAAGGTTGAGCC
CAAATCTTGTGACAAAACTCACACATGCCCACCGTGCCCAGCACCTGAACTCCTG
GGGGGACCGTCAGTCTTCCTCTTCCCCCCAAAACCCAAGGACACCCTCATGATCTC
CCGGACCCCTGAGGTCACATGCGTGGTGGTGGACGTGAGCCACGAAGACCCTGAG
GTCAAGTTCAACTGGTACGTG<u>GAC</u>GGCGTGGAGGTGCATAATGCCAAGACAAAG
CCGCGGGAGGAGCAGTACAACAGCACGTACCGTGTGGTCAGCGTCCTCACCGTCC
TGCACCAGGACTGGCTGAATGGCAAGGAGTACAAGTGCAAGGTCTCCAACAAAG
CCCTCCCAGCCCCCATCGAGAAAACCATCTCCAAAGCCAAAGGGCAGCCCCGAGA
ACCACAGGTGTACACCCTGCCCCCATCCCGGGACGAGCTGACCAAGAACCAGGTC
AGCCTGACCTGCCTGGTCAAAGGCTTCTATCCCAGCGACATCGCCGTGGAGTGGG
AGAGCAATGGGCAGCCGGAGAACAACTACAAGACCACGCCTCCCGTGCTGGACTC
CGACGGCTCCTTCTTCCTCTATAGCAAGCTCACCGTGGACAAGAGCAGGTGGCAG
CAGGGGAACGTCTTCTCATGCTCCGTGATGCATGAGGCTCTGCACAACCACTACA
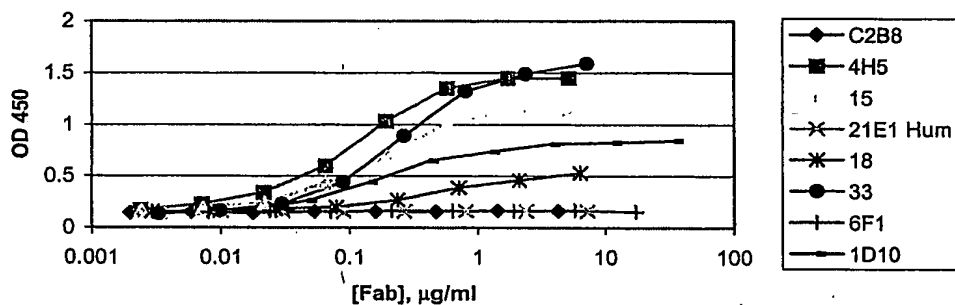CGCAGAAGAGCCTCTCCCTGTCTCCGGGTAAATGA

FIGURE 12
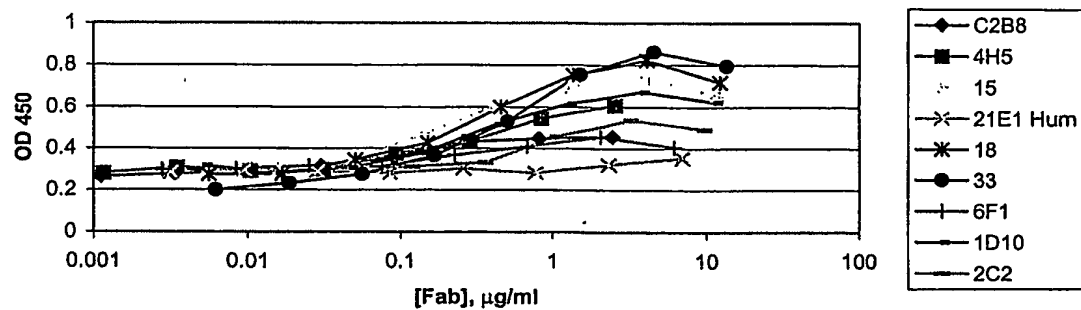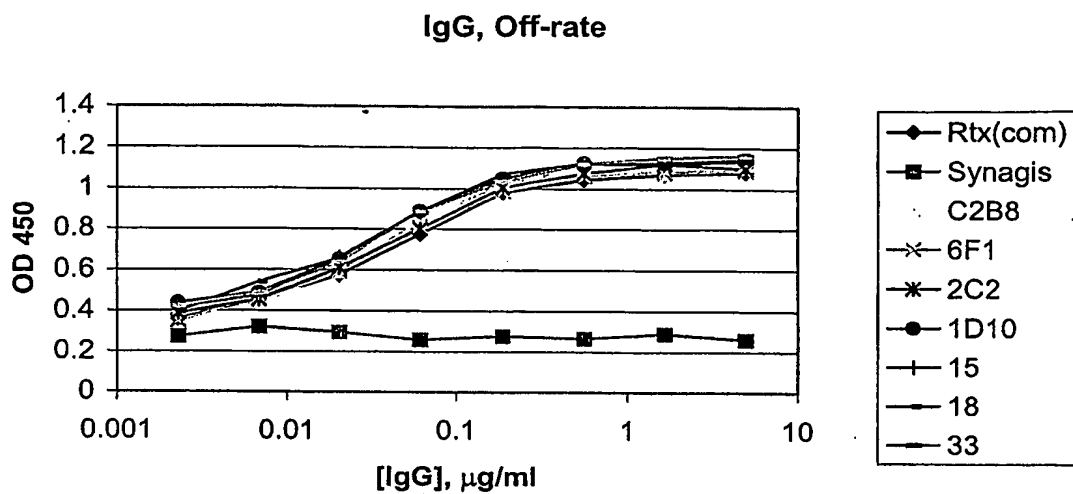
A.

Fab, Binding
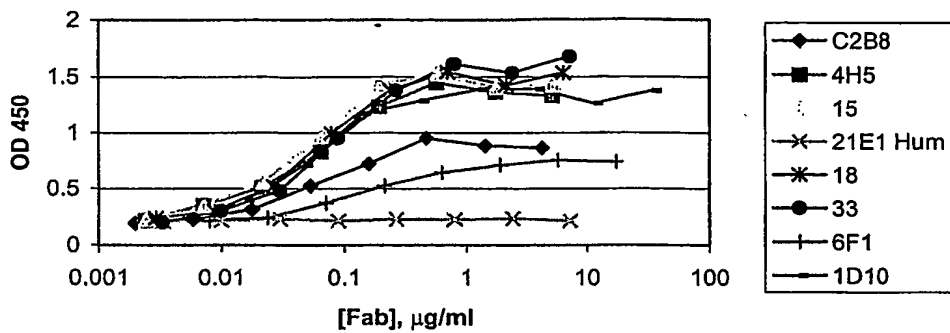
B.

Fab, Off rate

C.

Fab, On rate

FIGURE 13

A.

IgG, Off-rate

B.

IgG, On-rate
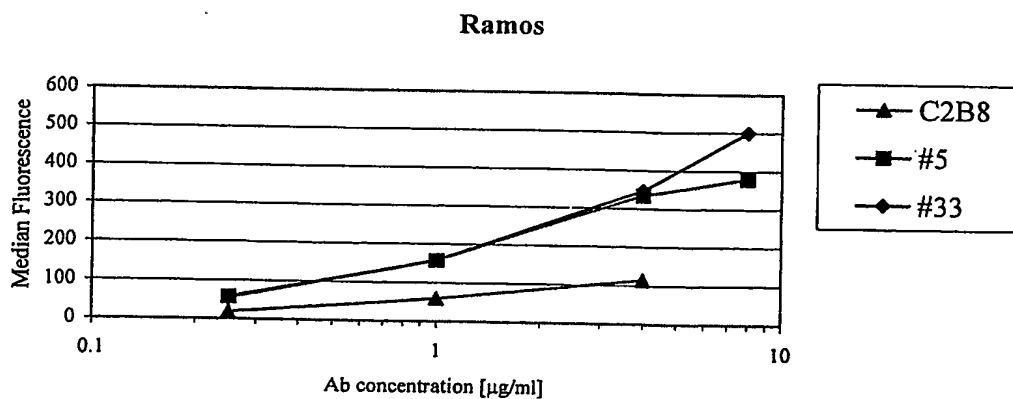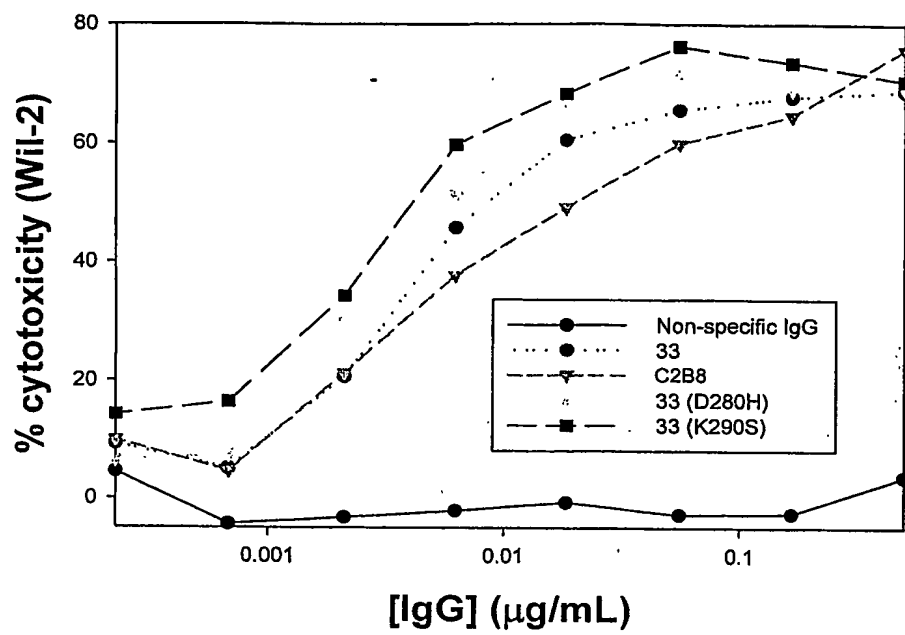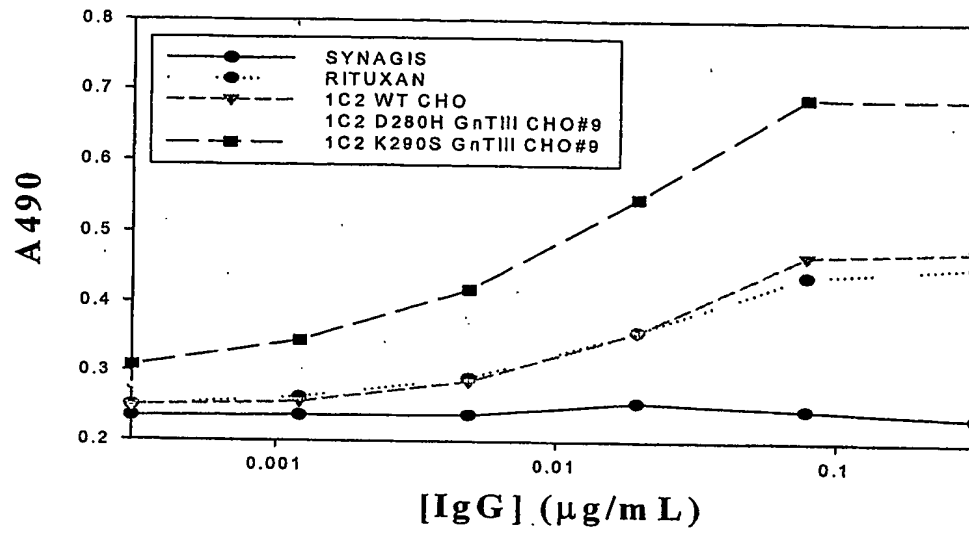
FIGURE 14

A.

Daudi

B.

Wil2-S

C.

Ramos
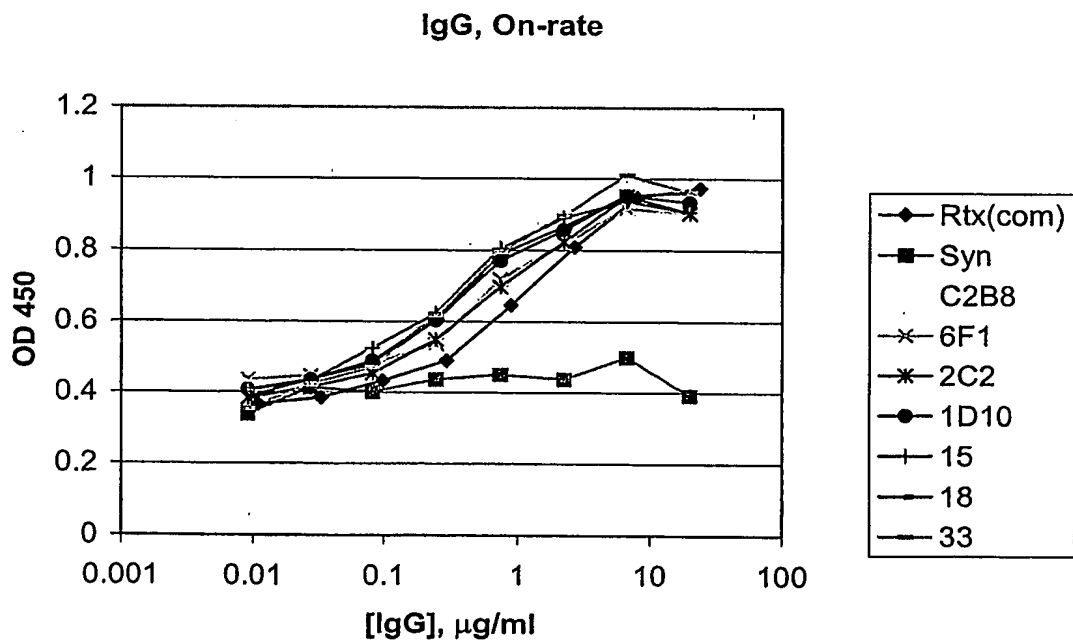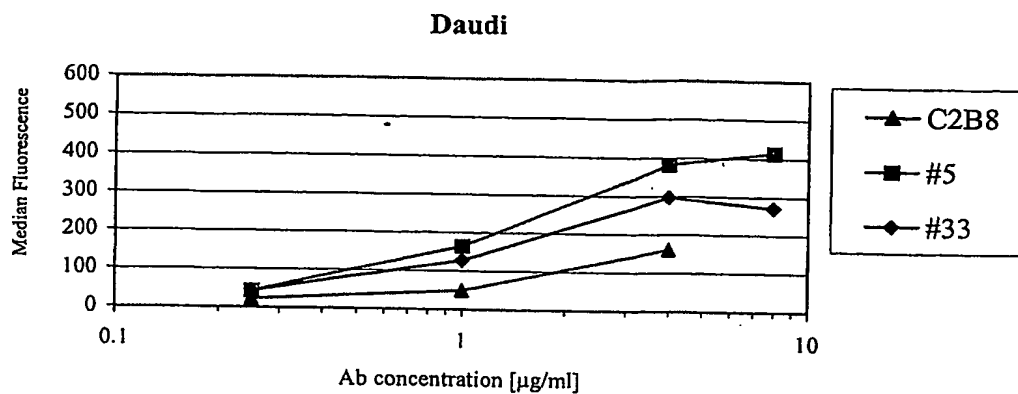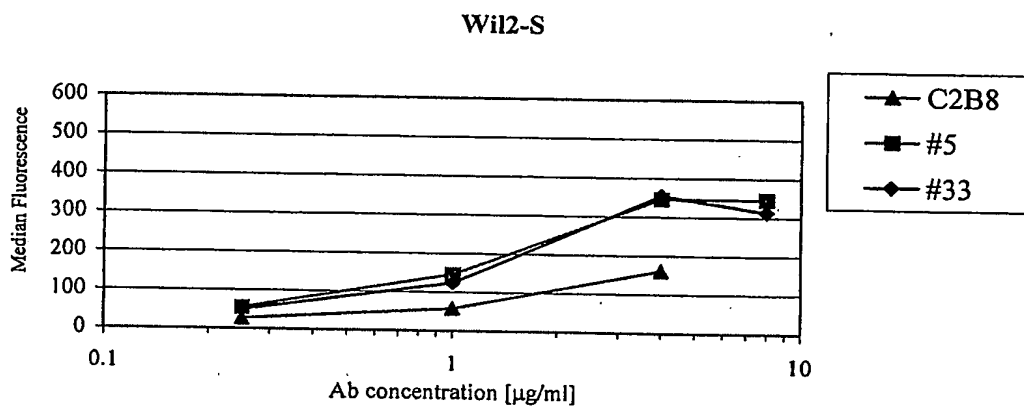
FIGURE 15

FIGURE 16

FIGURE 17